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mary of the literature of the genus. *I. Suksdorfii* appears as a new species from Washington Territory, said to be easily recognized by its trilobed rootstock.

The U. S. species of *Marsilia* are reduced to four, *M. tenuifolia* strangely kept distinct, while *M. uncinata* and *M. mucronata* are made varieties of *M. vestita*. Extended study of large suites of the American forms has led us to different results.<sup>5</sup> The error of Al. Braun (in *Berl. Monatsbericht*) in copying Engelmann's *M. macropoda* as *macropus* is here repeated, the original description evidently not being consulted.

*Salvinia natans* is not credited to America, yet its existence in Missouri is an established fact. Notwithstanding these omissions, the work is a valuable addition to the literature of the pteridophytes.

LUCIEN M. UNDERWOOD.

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### NOTES AND NEWS.

MR. W. BAKER, formerly a member of the Kew staff, has been appointed curator of the Oxford Botanic Garden.

COUNT H. VON SOLMS-LAUBACH, professor of botany at Göttingen, has accepted the position of director of the botanical garden at Berlin.

PROF. L. H. BAILEY, JR., of the Michigan Agricultural College, is delivering a course of lectures at Cornell University on horticulture.

TWO NEW GENERA of Ascomycetes are published in *Journal de Botanique* (Nov. 15) by M. Ph. Van Tieghem, under the names *Oleina* and *Podocapsa*.

ERRATUM.—After the review of Rees and Fisch's monograph on Elaphomyces, vol. xii, p. 255, append the initials W. T. The review was contributed at the editors' request.

DR. H. H. RUSBY has distributed his paper on the cultivation of *Cinchona* in Bolivia as a reprint from the *Pharmaceutical Record*. It was read at the last meeting of the A. A. A. S.

AN ARTICLE on the mycodomata of papilionaceous roots by Dr. A. N. Lundström in the last number of *Botaniska Notiser* is accompanied with a plate illustrating the bacterioid bodies found in the tubercles.

AN INTERESTING account of the morphology and biology of the Uredineæ by P. Dietel is being published in the successive numbers of the *Botanisches Centralblatt*, in which many American species are considered.

THE *West American Scientist* enters upon its fourth volume with continued assurance of success. Its editor, Mr. C. R. Orcutt, is doing a good work in keeping alive an interest in natural history subjects on the Pacific slope.

PROFESSOR L. VON CIENKOWSKI, of the Russian University of Charkow, well known by his studies on low forms of animal and plant life, and particularly by his memoir on the "Morphologie der Bacterien," died October 7, at Leipzig.

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<sup>5</sup> Cf. Bulletin Torrey Bot. Club, May, 1887.

THE COPLEY MEDAL for 1887 has been awarded to the distinguished botanist, Sir Joseph Dalton Hooker. In his address of presentation, President Stokes (of the Royal Society) gave a brief account of his place in botany, the most appreciative words being quoted from Prof. Asa Gray.

THE THIRD NUMBER of *Pittonia* (November, 1887) contains "West American phases of the genus *Potentilla*," the third paper on "West Am. *Asperifoliae*," "Some American *Polemoniaceae*," "New or noteworthy species," "Echinocystis, §. *Megarrhiza*," and a "biographical notice of Dr. Albert Kellogg." Those interested in the botany of the Pacific slope can secure this series of papers by addressing Prof. Edward L. Greene, Berkeley, California.

ENGLER AND PRANTL'S *Die natürlichen Pflanzenfamilien* has reached its thirteenth number, and, with its array of authors, superb illustrations and low price, remains one of the most notable botanical publications of the day. The last four parts contain the following families: *Amaryllidaceae*, *Velloziaceae*, *Taccaceae*, *Dioscoreaceae*, and *Iridaceae*, by F. Pax; *Flagellariaceae*, *Mayacaceae*, *Xyridaceae*, *Rapateaceae*, *Typhaceae*, and *Sparganaceae*, by A. Engler; *Restionaceae*, *Centrolepidaceae*, and *Eriocaulaceae*, by G. Hieronymus; *Bromeliaceae*, by L. Wittmack; *Pandanaceae*, by H. Graf zu Solms; *Gramineae*, by E. Hackel.

EPIDERMAL CHLOROPHYLL is the subject of a paper in the *Journal of Botany* (Dec.) by S. Le M. Moore. Stöhr (Sitzb. der K. Akad. Wien. 1879, p. 87) had shown that out of 102 dicotyls 94 had chlorophyll in epidermal cells at some period of life. Mr. Moore found that out of 120 angiosperms 102 had epidermal chlorophyll at least on the lower leaf surface; of these, 115 were dicotyls, 101 of which had epidermal chlorophyll. Of the species with epidermal chlorophyll grains, 34 per cent. showed easily discoverable starch therein; in an additional 24 per cent., small amounts of starch could be discovered; leaving 42 per cent. with absolutely starchless grains.

IN A SHORT note in the *Biologisches Centralblatt* (vii. 510) Stahl suggests that raphides, hitherto considered as a useless excretion, are specially useful to plants as a protection against the herbivorous animals. In a series of experiments it was found that a large number of animals eat not at all or but sparingly the plants containing raphides, while some—*e. g.*, snails—eat only the parts of the plants from which the needle crystals are absent. He adds that many plants considered poisonous—*e. g.*, *Arum maculatum*—owe the burning taste wholly to the numerous raphides which escape from their receptacles and pierce the tongue and gums. It would be interesting to know whether the juice of our *Arisema triphyl- lum* would lose its intensely acrid taste by filtration.

PROF. JOSEPH LECONTE, in *Am. Jour. Sci.* (Dec.), has a paper upon the flora of the coast islands of California in relation to recent changes of physical geography. His conclusions are based upon results obtained by Prof. E. L. Greene in his studies of the flora of these islands. He considers it to be proved that the islands were undoubtedly separated during the quaternary period, and that the peculiarity of the flora is due to species saved by isolation. In the case of Madagascar the separation has been very long, and the peculiarity of its flora is due partly to "progressive divergence," and partly to forms saved by isolation. As the author suggests in the closing paragraph, such conclusions can be safely drawn only after a much more exhaustive study of the species concerned.